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CRUISE REPORT

R/V JAMES M. GILLISS

GS-7903-3

7 - 25 June 1979

John M. Aaron
U. S. Geological Survey
Woods Hole, MA 02543

16 July 1979

1. Ship Name : R/V JAMES M. GILLISS
2. Cruise Number : GS - 7903-3
3. Project Area : North Atlantic OCS Environmental Assessment (in cooperation with the Bureau of Land Management)
4. Area of Operations : United States Atlantic Continental Slope off New England - 39° 5' N to 42° N
5. Dates and Ports : Leave harbor, Provincetown, MA. 1310 EDT, 7 June 1979
Arrive Woods Hole, MA. 0630 EDT 25 June 1979
6. Scientific Party :

John M. Aaron	Chief Scientist	U.S.G.S. Woods Hole, MA
Richard E. Sylwester	USGS,	Woods Hole, MA
Kim D. Klitgord	USGS,	Woods Hole, MA
Gerard McCarthy	USGS,	Woods Hole, MA
Barry Irwin	USGS,	Woods Hole, MA
James Dodd	USGS,	Woods Hole, MA
David Egelson	USGS,	Woods Hole, MA
David Mason	USGS,	Woods Hole, MA
Valerie Paskevich	USGS,	Woods Hole, MA
John Hampson	USGS,	Woods Hole, MA
Kathryn Scanlon	USGS,	Woods Hole, MA
Kurt Grove	USGS,	San Juan, PR
John Larson	USGS,	Woods Hole, MA
Robert Douthart	USGS,	Woods Hole, MA
R. R. Hagen	Master,	R/V Gilliss
7. Purpose of Cruise :
 1. To determine location, extent, morphology, and internal geometry of mass sediment movement (slumps and slides) on the Continental Slope off New England using high resolution geophysical methods (14.5 days)
 2. To study and correlate stratigraphy of Jurassic and Cretaceous strata north and south of the New England sea mount chain using geophysical methods (3 days).
8. Navigation Techniques : U.S.G.S. Integrated Navigation System (INS); INS positions (Rho - Rho Loran C) automatically recorded at 20 second intervals and manually plotted at 15 minute intervals; Loran C (Northstar 6000) positions automatically recorded at 5 minute intervals.

9. Scientific Equipment :

- a. Integrated Navigation System
- b. Northstar 6000 Loran C with recorder
- c. Airguns 500 cu. in. with recorders
160 cu. in.
40 cu. in.
- d. Teledyne 800 joule minisparker with recorder
- e. 3.5 - 7 KHz hull-mounted tuneable transducer with recorder
- f. 7 - channel analog tape recorder
- g. Magnetometer
- h. Gravimeter

10. Tabulated Information :

- a. Days at sea : 17.5 (14.5 days slump study
3.0 days deep seismic stratigraphy)
- b. Amount of data
 - I. Slump study : 3257 Km (1759 nautical miles) with 3.5 KHz echo sounder, mini-sparker, 40 in.³ air gun
 - II. Deep stratigraphy: 775 Km (419 nautical miles) with 3.5 KHz echo sound, minisparker, 500 and 160 in.³ airguns
4032 Km gravity + magnetics

11. Narrative

<u>7 June</u>	1145	Provincetown, MA board schooner OLAD, ferried to R/V GILLISS
	1215	Scientific party boards GILLISS
	1310	Leave Provincetown Harbor
<u>8 June</u>	0730	Deploy seismic gear and magnetometer; begin slump survey of Continental Slope at Northeast Channel
<u>9-10 June</u>		Seismic survey underway
<u>11 June</u>	0150	Hooked long line marker buoy; secured all survey gear; ship backed down until free of buoy.
	0240	Gear redeployed, survey resumed
<u>12 June</u>	2057	Retrieve 40 in. ³ air guns. Deploy 500 and 160 in. ³ air guns; begin survey of stratigraphy north and south of New England Sea mount Chain.
<u>13-15 June</u>		Survey underway
<u>16 June</u>	0045	Terminate stratigraphy survey; retrieve 500 and 160 in. ³ air guns. Deploy 40 in. ³ air gun
	0345	Resume slump survey

<u>17 June</u>	0500	Radio contact with fishing vessel informed of line obstacle in path of GILLISS. Detoured to avoid.
	0628	Clear of fishing lines (no contact); resume survey
<u>18-22 June</u>		Survey underway
<u>23 June</u>	0023	Fishing vessel and many long line buoys in path. Long detour to avoid contact
	0230	Return to intended line, resume survey
<u>24 June</u>	1805	Terminate seismic survey; begin recovery of geophysical gear.
	1832	All gear secure; underway to Woods Hole
<u>25 June</u>	0630	Arrive Woods Hole, terminate cruise

Initial impression of results

Overall the quality of data is excellent, with good resolution and penetration. The data show much slumping on the Continental Slope between 500 and 2000 meters water depth. Many displaced slump bodies occur near the base of the Continental Slope and on the upper Continental Rise.

